

8S651M-RZ / 8S651M-RZ-C

Intel Pentium® 4 Processor Motherboard

User's Manual

Rev. 1001

12ME-8S651MRZ-1001

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Notice

Please do not remove any labels on motherboard, this may void the warranty of this motherboard.

Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.

The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update the information contained herein.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: G.J.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No. (818) 854-9338 (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: 8S651M-RZ

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109

(e) Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undisturbed operation.

Representative Person's Name: ERIC LIU

Signature: *E-Liu E-Liu*

Date: Feb. 20, 2004

Declaration of Conformity
To the Rules of the
FCC

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20541

(Signature) of the responsible person, responsible for the device

Mother Board

8S651M-RZ

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F. Declaration of the responsible person

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Conforms to the CE mark

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Preparing Your Computer

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not to touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.



Installing the motherboard to the chassis

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed; you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near the hole. Be careful, don't let the screw contact any printed circuit wire or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

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Chapter 1 Introduction

Features Summary

CPU	<ul style="list-style-type: none"> • Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor • Support Intel® Pentium® 4 (Northwood, 0.13μm) processor • Intel Pentium®4 400/533 MHz FSB • 2nd cache depends on CPU
Chipset	<ul style="list-style-type: none"> • North Bridge:SiS 651 • South Bridge:SiS 962L MuTIO/L Media I/O
Memory	<ul style="list-style-type: none"> • 2 184-pin DDR sockets • Supports DDR200/DDR266/DDR333 • Supports up to 2 un-buffer Double-sided DIMM DDR200/266/333 • Supports up to 2GB (Max) • Supports only 2.5V DDR DIMM
Slots	<ul style="list-style-type: none"> • 1 Universal AGP slot (2X/4X) device support • 3 PCI slot supports 33MHz & PCI 2.2 compliant
On-Board IDE	<ul style="list-style-type: none"> • 2 IDE bus master (UDMA33/ATA66/ATA100/ATA133) IDE ports for up to 4 ATAPI devices • Supports PIO mode3,4 (UDMA 33/ATA66/ATA100/ATA133) IDE & ATAPI CD-ROM
On-Board Floppy	<ul style="list-style-type: none"> • Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes
On-Board Peripherals	<ul style="list-style-type: none"> • 1 Parallel port supports Normal/EPP/ECP mode • 1 Serial port (COMA), 1 VGA port, COMB on board • 6 x USB 2.0/1.1 (2 x Rear, 4 x Front by cable) • 1 Front Audio Connector • 1 IrDA connector for IR • PS/2 Keyboard interface and PS/2 Mouse interface
On-Board VGA	<ul style="list-style-type: none"> • Build in SiS651 Chipset
On-Board LAN *	<ul style="list-style-type: none"> • Build in RTL8201 Chipset
On-Board Sound	<ul style="list-style-type: none"> • Realtek ALC655 CODEC • Line Out / 2 front speaker • Line In / 2 rear speaker (by s/w switch) • Mic In / center & subwoofer (by s/w switch) • SPDIF Out / SPDIF In • CD_In / Game Port
BIOS	<ul style="list-style-type: none"> • Licensed Award BIOS • Supports Q-Flash
I/O Control	<ul style="list-style-type: none"> • W83697HF

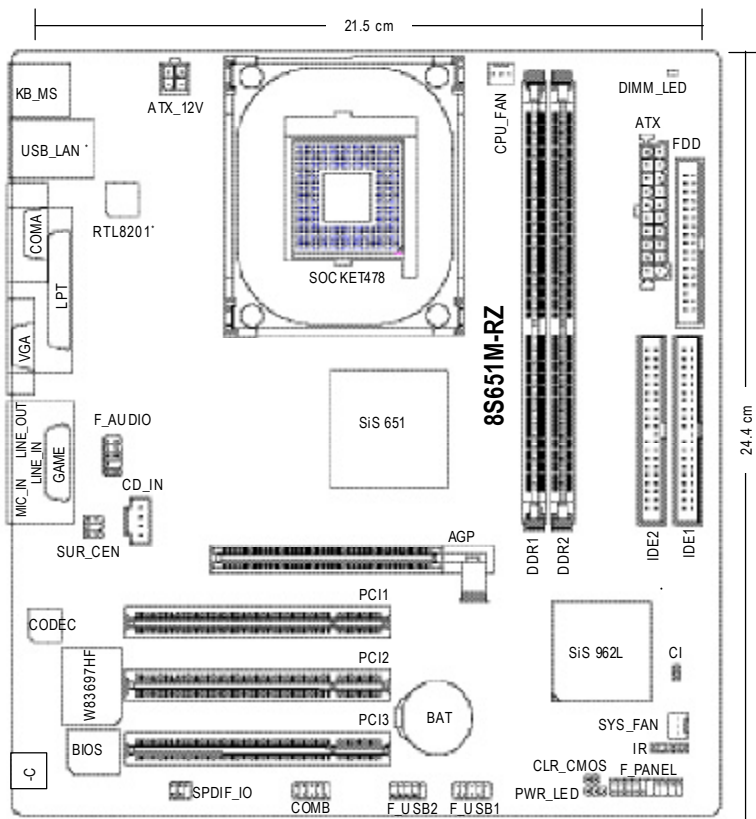
“*” For 8S651M-RZ only.

Hardware Monitor	<ul style="list-style-type: none">• CPU/System Fan Revolution detect• CPU/System Fan Control• CPU Overheat Warning• System Voltage Detect
Additional Features	<ul style="list-style-type: none">• PS/2 Keyboard power on by password• PS/2 Mouse power on• STR(Suspend-To-RAM)• AC Recovery• USB KB/Mouse wake up from S3• Supports EasyTune 4• Supports @BIOS
Form Factor	<ul style="list-style-type: none">• 24.4cm x 21.5cm Micro ATX size form factor, 4 layers PCB.



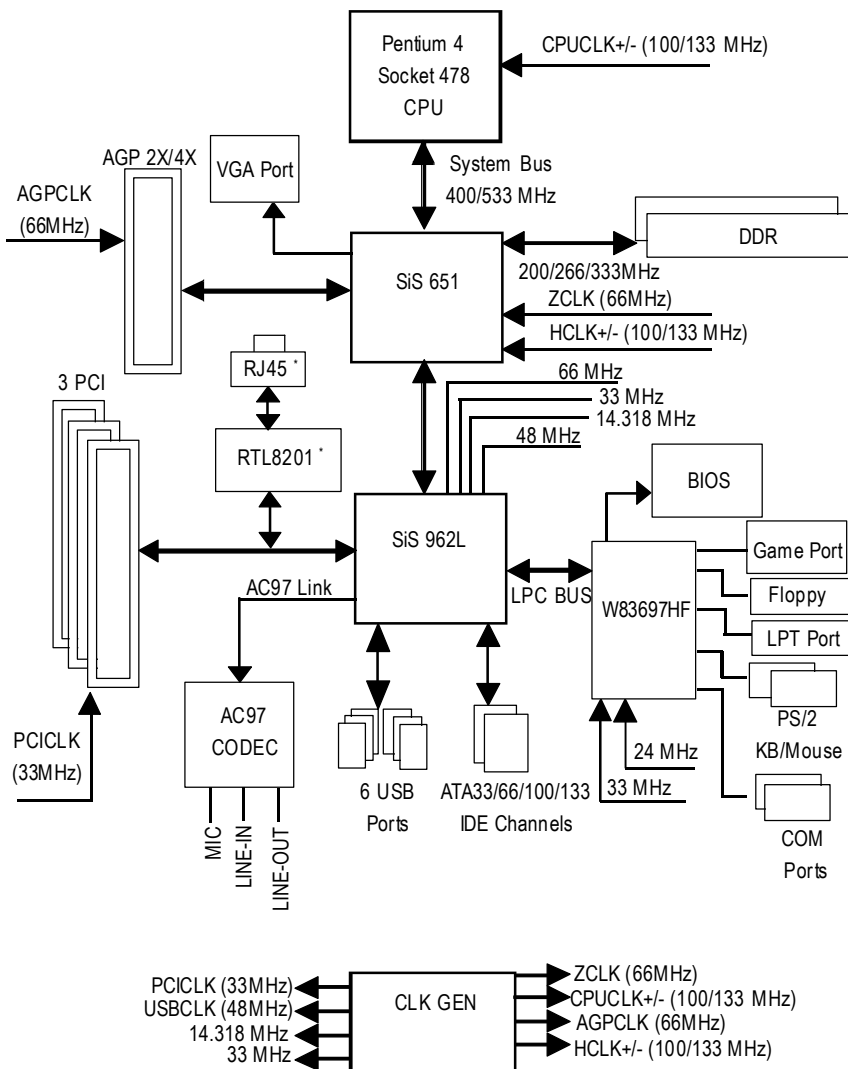
Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, Memory, Cards.....etc.

8S651M-RZ Series Motherboard Layout



“*” For 8S651M-RZ only.

Block Diagram



“*” For 8S651M-RZ only.

Hardware Installation Process

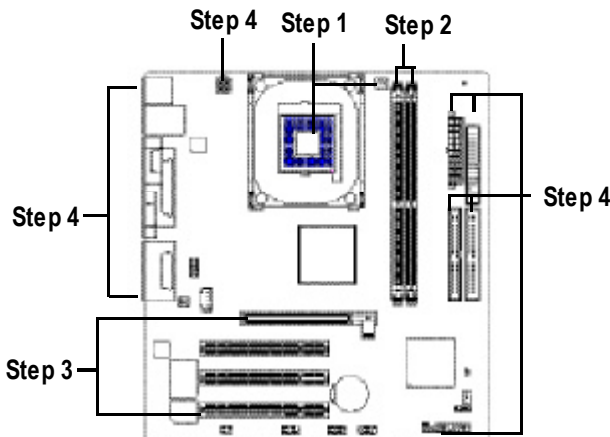
To set up your computer, you must complete the following steps:

Step 1- Install the Central Processing Unit (CPU)

Step 2- Install memory modules

Step 3- Install expansion cards

Step 4- Install I/O Peripherals cables



Step 1: Install the Central Processing Unit (CPU)



Before installing the processor, adhere to the following warning:

1. Please make sure the CPU type is supported by the motherboard.
2. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.
3. If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.
4. Apply thermal grease between the processor and cooling fan.
5. Never run the processor without the heatsink properly and firmly attached. Permanent damage will result.
6. Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Memory, Cards...etc.



HT functionality requirement content :

Enabling the functionality of Hyper-Threading Technology for your computer system requires all of the following platform components:

- CPU: An Intel® Pentium 4 Processor with HT Technology
- Chipset: An Intel® Chipset that supports HT Technology
- BIOS: A BIOS that supports HT Technology and has it enabled
- OS: An operation system that has optimizations for HT Technology

Step 1-1: CPU Installation

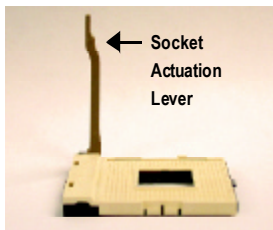


Figure 1.
Pull the rod to the 90-degree directly.

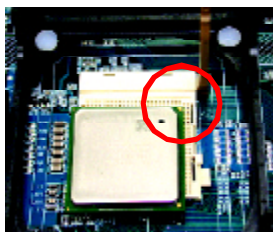


Figure 2.
Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Insert the CPU into the socket. (Do not force the CPU into the socket.) Then move the socket lever to the locked position while holding pressure on the center of the CPU.

Step 1-2: CPU Cooling Fan Installation



Figure 1.
Apply the thermal tape(or grease) to provide better heat conduction between your CPU and cooling fan.



Figure 2.
Fasten the cooling fan supporting-base onto the CPU socket on the motherboard.

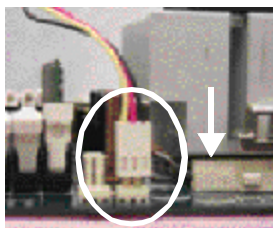


Figure 3.
Make sure the CPU fan is plugged to the CPU fan connector, than install complete.

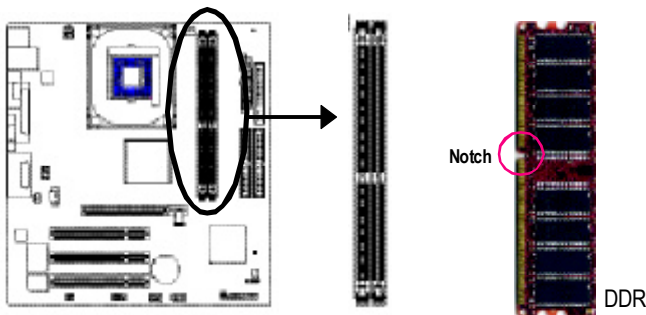
Step 2: Install memory modules



Before installing the memory modules, adhere to the following warning:

1. When DIMM LED is ON, do not install / remove DIMM from socket.
2. Please note that the DIMM module can only fit in one direction due to the one notch. Wrong orientation will cause improper installation. Please change the insert orientation.

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket. The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.



Support Unbuffered DDR DIMM Sizes type:

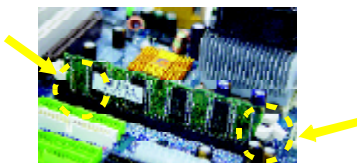
64 Mbit (2Mx8x4 banks)	64 Mbit (1Mx16x4 banks)	128 Mbit (4Mx8x4 banks)
128 Mbit (2Mx16x4 banks)	256 Mbit (8Mx8x4 banks)	256 Mbit (4Mx16x4 banks)
512 Mbit (16Mx8x4 banks)	512 Mbit (8Mx16x4 banks)	



1. The DIMM socket has a notch, so the DIMM memory module can only fit in one direction.



2. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.



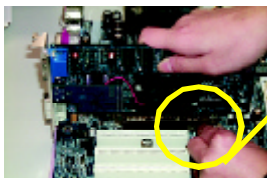
3. Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.

Step 3: Install expansion cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Please make sure your AGP card is AGP 4X/8X (1.5V).



3. Please carefully pull out the small white- drawable bar at the end of the AGP slot when you try to install/ Uninstall the AGP card. Please align the AGP card to the onboard AGP slot and press firmly down on the slot .Make sure your AGP card is locked by the small white- drawable bar.

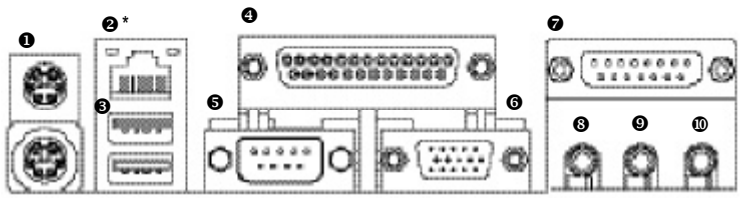


AGP Card



Step 4: Install I/O Peripherals Cables

Step 4-1: I/O Back Panel Introduction



❶ PS/2 Keyboard and PS/2 Mouse connector

This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ LAN port*

LAN is fast Ethernet with 10/100Mbps speed.

❸ USB port

Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. Have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

❹ Parallel port (LPT)

Device like printer can be connected to Parallel port.

❺ Serial port (COMA)

Mouse and modem etc. can be connected to Serial port.

*For 8S651M-RZ only.

⑥ VGA port

Monitor can be connected to VGA port.

⑦ Game/MIDI port

This connector supports joystick, MIDI keyboard and other relate audio devices.

⑧ Line Out jack

Connect the stereo speakers or earphone to this connector.

⑨ Line In jack

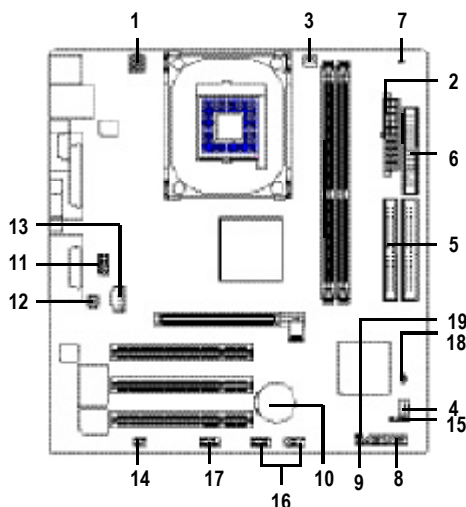
Devices like CD-ROM , walkman etc. can be connect to Line In jack.

⑩ MIC In jack

Microphone can be connect to MIC In jack.

After installation of the audio driver, you are able to use 2/4/6-channel audio feature by software selection. You can connect "Front speaker" to "Line Out" jack, Connect "Rear speaker" to "Line In" jack and connect "Center/Subwoofer" to "MIC In" jack.

Step 4-2: Connectors Introduction

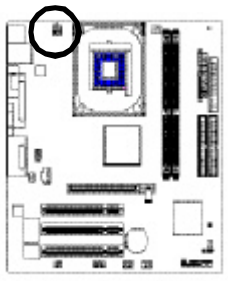


1) ATX_12V	11) F_AUDIO
2) ATX	12) SUR_CEN
3) CPU_FAN	13) CD_IN
4) SYS_FAN	14) SPDIF_IO
5) IDE1/IDE2	15) IR
6) FDD	16) F_USB1/F_USB2
7) DIMM_LED	17) COMB
8) F_PANEL	18) C1
9) PWR_LED	19) CLR_CMOS
10) BAT	

1) ATX_12V(+12V Power Connector)

This connector (ATX_12V) supplies the CPU operation voltage (Vcore).

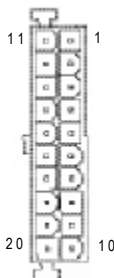
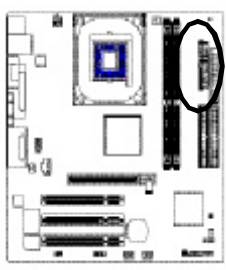
If this "ATX_12V connector" is not connected, system cannot boot.



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

2) ATX(ATX Power)

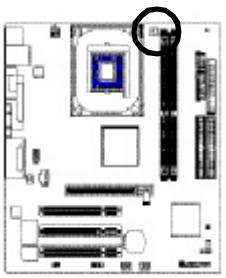
AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the motherboard.



Pin No.	Definition	Pin No.	Definition
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	VCC	14	PS_ON(soft on/off)
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	Power Good	18	-5V
9	5V SB (stand by +5V)	19	VCC
10	+12V	20	VCC

3) CPU_FAN (CPU FAN Connector)

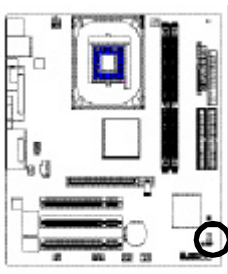
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating. The CPU fan connector supports Max. current up to 600 mA.



Pin No.	Definition
1	GND
2	+12V
3	Sense

4) SYS_FAN (System FAN Connector)

This connector allows you to link with the cooling fan on the system case to lower the system temperature.

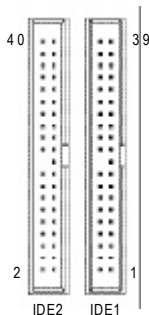
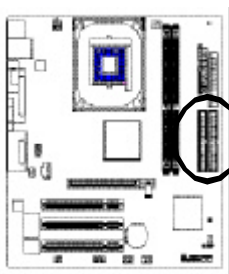


PinNo.	Definition
1	GND
2	+12V
3	Sense

5) IDE1/ IDE2(IDE1/IDE2 Connector)

Please connect first harddisk to IDE1 and connect CDROM to IDE2.

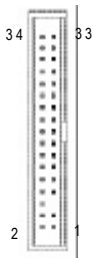
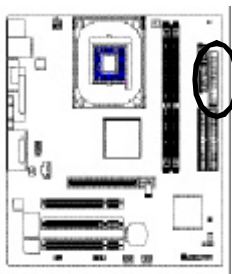
The red stripe of the ribbon cable must be the same side with the Pin1.



6) FDD (Floppy Connector)

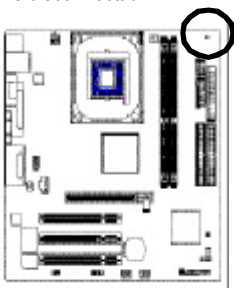
Please connect the floppy drive ribbon cables to FDD. It supports 360K,720K,1.2M,1.44M and 2.88M bytes floppy disk types.

The red stripe of the ribbon cable must be the same side with the Pin1.



7) DIMM_LED

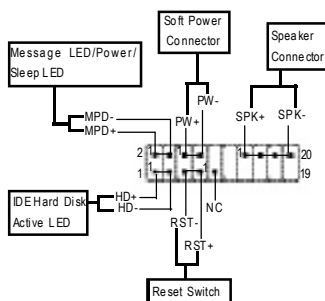
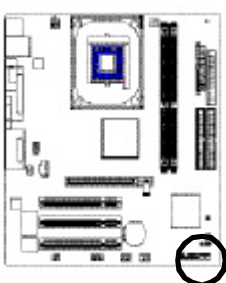
Do not remove memory modules while DIMM LED is on. It might cause short or other unexpected damages due to the 2.5V stand by voltage. Remove memory modules only when AC Power cord is disconnected.



+ -

8) F_PANEL (2x10 pins connector)

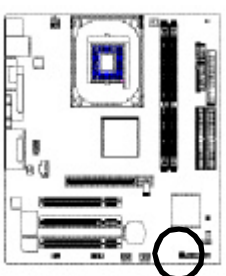
Please connect the power LED, PC peaker, reset switch and power switch etc of your chassis front panel to the F_PANEL connector according to the pin assignment above.



HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(-)
RST (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off
MPD (Message LED/Power/Sleep LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC	NC

9) PWR_LED

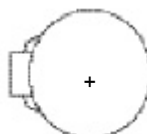
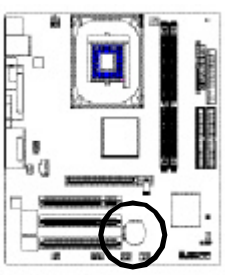
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode. If you use dual color LED, power LED will turn to another color.



1

PinNo.	Definition
1	MPD+
2	MPD-
3	MPD-

10) BAT (Battery)



CAUTION

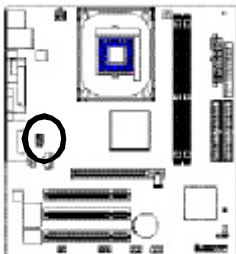
- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery, wait for 30 second.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

11) F_AUDIO (F_AUDIO Connector)

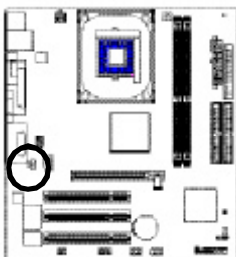
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer. Please note, you can have the alternative of using front audio connector or of using rear audio connector to play sound.



PinNo.	Definition
1	MIC
2	GND
3	REF
4	POWER
5	FrontAudio(R)
6	RearAudio(R)
7	Reserved
8	NoPin
9	FrontAudio(L)
10	RearAudio(L)

12) SUR_CEN

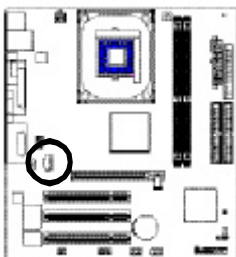
Please contact your nearest dealer for optional SUR_CEN cable.



PinNo.	Definition
1	SUROUT L
2	SUROUT R
3	GND
4	NoPin
5	CENTER_OUT
6	BASS_OUT

13) CD_IN

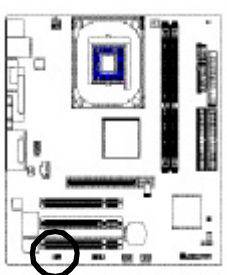
Connect CD-ROM or DVD-ROM audio out to the connector.



PinNo.	Definition
1	CD_L
2	GND
3	GND
4	CD_R

14) SPDIF_IO (SPDIF In/Out)

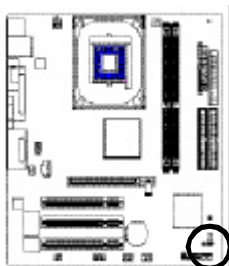
The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF_IO cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF_IO cable, please contact your local dealer.



PinNo.	Definition
1	VCC
2	NoPin
3	SPDIF
4	SPDIF I
5	GND
6	GND

15) IR

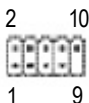
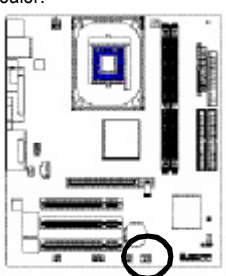
Make sure the pin 1 on the IR device is aligning with pin one the connector. To enable the IR function on the board, you are required to purchase an option IR module. Be careful with the polarity of the IR connector. For optional IR cable, please contact your local dealer.



PinNo.	Definition
1	VCC
2	NoPin
3	IRData Input
4	GND
5	IRData Output

16) F_USB1 / F_USB2 (Front USB Connector)

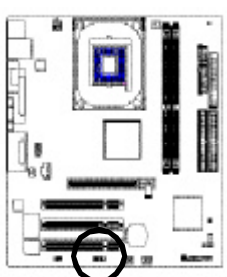
Be careful with the polarity of the F_USB connector. Check the pin assignment carefully while you connect the F_USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional F_USB cable, please contact your local dealer.



PinNo.	Definition
1	Power
2	Power
3	USB D ⁺
4	USB D ⁻
5	USB D ⁺
6	USB D ⁻
7	GND
8	GND
9	NoPin
10	NC

17) COMB (COM B Connector)

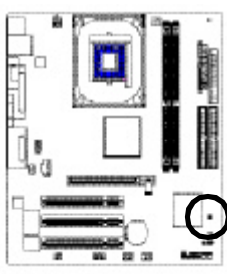
Be careful with the polarity of the COMB connector. Check the pin assignment while you connect the COMB cable. Please contact your nearest dealer for optional COMB cable.



PinNo.	Definition
1	NDODB-
2	NSINB
3	NSOUTB
4	NDTRB-
5	GND
6	NDSRB-
7	NRTSB-
8	NCTSB-
9	NRIB-
10	NoPin

18) CI (CASE OPEN)

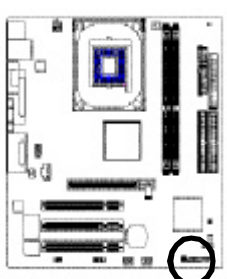
This 2 pin connector allows your system to enable or disable the "case open" item in BIOS if the system case begin remove.




PinNo.	Definition
1	Signal
2	GND

19) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the "Shunter" to prevent from im proper use this jumper.



1  Open: Normal

1  Close: Clear CMOS

Chapter 2 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Powering ON the computer and pressing immediately will allow you to enter Setup. If you require more advanced BIOS settings, please go to "Advanced BIOS" setting menu. To enter Advanced BIOS setting menu, press "Ctrl+F1" key on the BIOS screen.

CONTROL KEYS

<↑><↓><←><→>	Move to select item
<Enter>	Select item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<./PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the file-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu (For example: BIOS Ver. : E4)

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (as figure below) will appear on the screen. The Main Menu allows you to select from eight setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status ▶ Frequency/Voltage Control 	<ul style="list-style-type: none"> Top Performance Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	



If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden.

- **Standard CMOS Features**

This setup page includes all the items in standard compatible BIOS.

- **Advanced BIOS Features**

This setup page includes all the items of Award special enhanced features.

- **Integrated Peripherals**

This setup page includes all onboard peripherals.

- **PowerManagement Setup**

This setup page includes all the items of Green function features.

- **PnP/PCI Configuration**

This setup page includes all the configurations of PCI & PnP ISA resources.

- **PC Health Status**

This setup page is the System auto detect Temperature, voltage, fan, speed.

- **Frequency/VoltageControl**

This setup page is control CPU clock and frequency ratio.

- **Top Performance**

If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

- **Load Fail-Safe Defaults**

Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.

- **Load Optimized Defaults**

Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

- **Set Supervisor Password**

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- **Set User Password**

Change, set, or disable password. It allows you to limit access to the system.

- **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

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Standard CMOS Features

Date (mm:dd:yy)	Fri, Jan 9 2004	Item Help
Time (hh:mm:ss)	22:31:24	Menu Level▶
▶ IDE Primary Master	[None]	Change the day, month, year
▶ IDE Primary Slave	[None]	
▶ IDE Secondary Master	[None]	<Week>
▶ IDE Secondary Slave	[None]	Sun. to Sat.
Drive A	[1.44M, 3.5"]	<Month>
Drive B	[None]	Jan. to Dec.
Floppy 3 Mode Suport	[Disabled]	
Holt On	[All, But Keyboard]	<Day>
		1 to 31 (or maximum allowed in the month)
Base Memory	640K	
Extended Memory	127M	<Year>
Total Memory	128M	1999 to 2098
↑↓→←: Move Enter: Select +/~/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

☞ Date

The date format is <week>, <month>, <day>, <year>.

- ▶ Week The week, from Sun to Sat, determined by the BIOS and is display only
- ▶ Month The month, Jan. Through Dec.
- ▶ Day The day, from 1 to 31 (or the maximum allowed in the month)
- ▶ Year The year, from 1999 through 2098

☞ Time

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

☞ IDE Primary Master, Slave / IDE Secondary Master, Slave

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

- ▶ Cylinder Number of cylinders
- ▶ Head Number of heads
- ▶ Precomp Write precomp
- ▶ Landing Zone Landing zone
- ▶ Sector Number of sectors

If a hard disk has not been installed, select NONE and press <Enter>.

☞ **Drive A / Drive B**

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

- ▶▶ None No floppy drive installed
- ▶▶ 360K, 5.25" 5.25 inch PC-type standard drive; 360K byte capacity.
- ▶▶ 1.2M, 5.25" 5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
- ▶▶ 720K, 3.5" 3.5 inch double-sided drive; 720K byte capacity
- ▶▶ 1.44M, 3.5" 3.5 inch double-sided drive; 1.44M byte capacity.
- ▶▶ 2.88M, 3.5" 3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Floppy 3 Mode Support (for Japan Area)**

- ▶▶ Disabled Normal Floppy Drive. (Default value)
- ▶▶ Drive A Drive A is 3 mode Floppy Drive.
- ▶▶ Drive B Drive B is 3 mode Floppy Drive.
- ▶▶ Both Drive A & B are 3 mode Floppy Drives.

☞ **Halt on**

The category determines whether the computer will stop if an error is detected during power up.

- ▶▶ No Errors The system boot will not stop for any error that may be detected and you will be prompted.
- ▶▶ All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▶▶ All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
- ▶▶ All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.
- ▶▶ All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

☞ **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

▶▶ **BaseMemory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

▶▶ **ExtendedMemory**

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

Advanced BIOS Features

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Advanced BIOS Features

First Boot Device	[Floppy]	Item Help
Second Boot Device	[HDD-0]	Menu Level▶
Third Boot Device	[CDROM]	Select Boot Device priority
Boot Up Floppy Seek	[Disabled]	
Password Check	[Setup]	
		[Floppy] Boot from floppy
		[LS120] Boot from LS120
		[HDD-0] Boot from First HDD
		[HDD-1] Boot from Second HDD
↑↓→←: Move Enter: Select +/~/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

First / Second / Third Boot Device

- ▶ Floppy Select your boot device priority by Floppy.
- ▶ LS120 Select your boot device priority by LS120.
- ▶ HDD-0~3 Select your boot device priority by HDD-0~3.
- ▶ SCSI Select your boot device priority by SCSI.
- ▶ CDROM Select your boot device priority by CDROM.
- ▶ ZIP Select your boot device priority by ZIP.
- ▶ USB-FDD Select your boot device priority by USB-FDD.
- ▶ USB-ZIP Select your boot device priority by USB-ZIP.
- ▶ USB-CDROM Select your boot device priority by USB-CDROM.
- ▶ USB-HDD Select your boot device priority by USB-HDD.
- ▶ LAN Select your boot device priority by LAN.
- ▶ Disabled Select your boot device priority by Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks 720K, 1.2M and 1.44M are all 80 tracks.

- ▶ Enabled BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80tracks.
- ▶ Disabled BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.
(Default value)

Password Check

- ▶ System The system will not boot and will not access to Setup page if the correct password is not entered at the prompt
- ▶ Setup The system will boot but will not access to Setup page if the correct password is not entered at the prompt. (Default value)

Integrated Peripherals

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Integrated Peripherals

IDE1 Conductor Cable	[Auto]	Item Help
IDE2 Conductor Cable	[Auto]	Menu Level ►
On-Chip Primary PCI IDE	[Enabled]	[Auto]
On-Chip Secondary PCI IDE	[Enabled]	Auto-detect IDE cable type
AC'97 Audio	[Enabled]	
Onboard LAN Device ^(*)	[Enabled]	
System Share Memory Size	[32MB]	[ATA66/100/133]
USB Controller	[Enabled]	Set Conductor cable to
USB Legacy Support	[Disabled]	ATA66/100/133
Init Display First	[AGP]	(80-pins)
Onboard Serial Port A	[3F8/IRQ4]	
Onboard Serial Port B	[2F8/IRQ3]	[ATA33]
Serial Port B Mode	[Normal]	Set Conductor cable to
Onboard Parallel Port	[378/IRQ7]	ATA33 (40-pins)
Parallel Port Mode	[ECP]	
x EPP Mode Select	EPP1.7	
ECP Mode Use DMA	[3]	
Game Port Address	[201]	
Midi Port Address	[330]	
Midi Port IRQ	[10]	
⬆⬇⬆⬅: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

IDE1 Conductor Cable

- Auto Will be automatically detected by BIOS. (Default Value)
- ATA66/100/133 Set IDE1 Conductor Cable to ATA66/100/133 (Please make sure your IDE device and cable is compatible with ATA66/100/133).
- ATA33 Set IDE1 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

IDE2 Conductor Cable

- Auto Will be automatically detected by BIOS. (Default Value)
- ATA66/100/133 Set IDE2 Conductor Cable to ATA66/100/133 (Please make sure your IDE device and cable is compatible with ATA66/100/133).
- ATA33 Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

On-Chip Primary PCI IDE

- Enabled Enable onboard 1st channel IDE port. (Default value)
- Disabled Disable onboard 1st channel IDE port.

On-Chip Secondary PCI IDE

- Enabled Enable onboard 2nd channel IDE port. (Default value)
- Disabled Disable onboard 2nd channel IDE port.

AC'97 Audio

- Enabled Enable onboard AC'97 audio function. (Default value)
- Disabled Disable this function.

^(*) For 8S651M-RZ only.

☞ Onboard LAN Device ^(*)

- Enabled Enable onboard LAN device. (Default value)
- Disabled Disable onboard LAN device.

☞ System Share Memory Size

- 4MB/8MB/16MB/32MB/64MB Set onchip VGA shared memory size.(Default Value:32MB)

☞ USB Controller

- Enabled Enable USB Controller. (Default value)
- Disabled Disable USB Controller.

☞ USB Legacy Support

- Enabled Enable USB Legacy Support.
- Disabled Disable USB Legacy Support. (Default value)

☞ Init Display First

- AGP Set Init Display First to AGP. (Default value)
- PCI Set Init Display First to PCI.

☞ Onboard Serial Port A

- Auto BIOS will automatically setup the port A address.
- 3F8/IRQ4 Enable onboard Serial port A and address is 3F8. (Default value)
- 2F8/IRQ3 Enable onboard Serial port A and address is 2F8.
- 3E8/IRQ4 Enable onboard Serial port A and address is 3E8.
- 2E8/IRQ3 Enable onboard Serial port A and address is 2E8.
- Disabled Disable onboard Serial port A.

☞ Onboard Serial Port B

- Auto BIOS will automatically setup the port B address.
- 3F8/IRQ4 Enable onboard Serial port B and address is 3F8.
- 2F8/IRQ3 Enable onboard Serial port B and address is 2F8. (Default value)
- 3E8/IRQ4 Enable onboard Serial port B and address is 3E8.
- 2E8/IRQ3 Enable onboard Serial port B and address is 2E8.
- Disabled Disable onboard Serial port B.

☞ Serial Port B Mode

(This item allows you to determine which Infra Red(IR) function of Onboard I/O chip)

- ASKIR Set onboard I/O chip UART to ASKIR Mode.
- IrDA Set onboard I/O chip UART to IrDA Mode.
- Normal Set onboard I/O chip UART to Normal Mode. (Default Value)

☞ Onboard Parallel port

- 378/IRQ7 Enable onboard LPT port and address is 378/IRQ7. (Default Value)
- 278/IRQ5 Enable onboard LPT port and address is 278/IRQ5.
- Disabled Disable onboard LPT port.
- 3BC/IRQ7 Enable onboard LPT port and address is 3BC/IRQ7.

*** For 8S651M-RZ only.

Parallel Port Mode

- SPP Using Parallel port as Standard Parallel Port.
- EPP Using Parallel port as Enhanced Parallel Port.
- ECP Using Parallel port as Extended Capabilities Port. (Default Value)
- ECP+EPP Using Parallel port as ECP & EPP mode.

EPP Mode Select

- EPP 1.9 Compliant with EPP 1.9 version.
- EPP 1.7 Compliant with EPP 1.7 version. (Default Value)

ECP Mode Use DMA

- 3 Set ECP Mode Use DMA to 3. (Default Value)
- 1 Set ECP Mode Use DMA to 1.

Game Port Address

- 201 Set Game PortAddress to 201. (Default Value)
- 209 Set Game Port Address to 209.
- Disabled Disable this function.

Midi Port Address

- 290 Set Midi Port Address to 290.
- 300 Set Midi Port Address to 300.
- 330 Set Midi PortAddress to 330.(Default Value)
- Disabled Disable this function.

Midi Port IRQ

- 5 Set Midi Port IRQ to 5.
- 10 Set Midi Port IRQ to 10. (Default Value)

Power Management Setup

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Power Management Setup

ACPI Suspend Type	[S1 (POS)]	Item Help
Soft-Off by PWR_BTN	[Off]	Menu Level ►
System After AC Back	[Off]	[S1]
IRQ [3-7, 9-15], NMI	[Enabled]	Set suspend type to
ModemRingOn	[Enabled]	Power On Suspend under
PME Event Wake Up	[Enabled]	ACPI OS
Power On by Keyboard	[Disabled]	
Power On by Mouse	[Disabled]	
Resume by Alarm	[Disabled]	
x Month Alarm	NA	[S3]
x Day (of Month)	0	Set suspend type to
x Time (hh:mm:ss)	0 0 0	Suspend to RAM under
Power LED in S1 state	[Blinking]	ACPI OS
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

⚙️ **ACPI Suspend Type**

- S1(POS) Set ACPI suspend type to S1. (Default Value)
- S3(STR) Set ACPI suspend type to S3.

⚙️ **Soft-off by PWR_BTTN**

- Off The user press the power button once, he can turn off the system.
(Default Value)
- Suspend The user press the power button once, then the system will can enter suspend mode.

⚙️ **System after AC Back**

- LastState When AC-power back to the system, the system will return to the Last state before AC-power off.
- Off When AC-power back to the system, the system will be in "Off" state.
(Default Value)
- On When AC-power back to the system, the system will be in "On" state.

⚙️ **IRQ [3-7, 9-15], NMI**

- Disabled Disable this function.
- Enabled Enable this function. (Default value)

⚙️ **ModemRingOn**

- Disabled Disable Modem Ring on function.
- Enabled Enable Modem Ring on function. (Default Value)

⚙️ **PME Event Wake Up**

- Disabled Disable this function.
- Enabled Enable PME Event Wake up. (Default Value)

⚙️ **Power On by Keyboard**

- Password Input password (from 1 to 8 characters) and press Enter to set the Keyboard Power On Password.
- Any Key Set Keyboard power on by any key.
- Disabled Disable this function. (Default Value)

⚙️ **Power On by Mouse**

- Enabled Enable Power On by Mouse function.
- Disabled Disable this function. (Default Value)

⚙️ **Resume by Alarm**

You can set "Resume by Alarm" item to enabled and key in Date/time to power on system.

- Disabled Disable this function. (Default Value)
- Enabled Enable alarm function to POWER ON system.

If RTC Alarm Lead To Power On is Enabled.

Month Alarm : NA, 1~12

Day (of Month) : 0~31

Time (hh: mm: ss) : (0~23) : (0~59) : (0~59)

Power LED in S1 state

- ▶ Blinking In standby mode(S1), power LED will blink. (Default Value)
- ▶ Dual/OFF In standby mode(S1):
 - a. If use single color LED, power LED will turn off.
 - b. If use dual color LED, power LED will turn to another color.

PnP/PCI Configurations

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PnP/PCI Configurations

PCI 1 IRQ Assignment	[Auto]	Item Help
PCI 2 IRQ Assignment	[Auto]	Menu Level▶
PCI 3 IRQ Assignment	[Auto]	Device(s) using this INT:
		Display Cntrlr -Bus 1 Dev 0 Func 0
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

PCI 1 IRQ Assignment

- ▶ Auto Auto assign IRQ to PCI 1. (Default value)
- ▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

PCI 2 IRQ Assignment

- ▶ Auto Auto assign IRQ to PCI 2. (Default value)
- ▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

PCI 3 IRQ Assignment

- ▶ Auto Auto assign IRQ to PCI 3. (Default value)
- ▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 3.

PCI Health Status

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PC Health Status

Reset Case Open Status	[Disabled]	Item Help
Case Opened	No	Menu Level▶
VCORE	1.71V	
+3.3V	3.29V	
+5V	4.99V	
+12V	11.73V	
Current System Temperature	33° C/ 91° F	
Current CPU Temperature	27° C/ 80° F	
Current CPU FAN Speed	4821 RPM	
Current SYSTEM FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	
⬆⬇⬆⬅: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

Reset Case Open Status

Case Opened

If the case is closed, "Case Opened" will show "No".
If the case have been opened, "Case Opened" will show "Yes".
If you want to reset "Case Opened" value, set "Reset Case Open Status" to "Enabled" and save CMOS, your computer will restart.

Current Voltage (V) VCORE / +3.3V / +5V / +12V

▶ Detect system's voltage status automatically.

Current System/CPU Temperature

▶ Detect System/CPU Temp. automatically.

Current CPU/SYSTEM FAN Speed (RPM)

▶ Detect CPU/SYSTEM Fan speed status automatically.

CPU Warning Temperature

- ▶ 60°C / 140°F Monitor CPU Temp. at 60°C / 140°F.
- ▶ 70°C / 158°F Monitor CPU Temp. at 70°C / 158°F.
- ▶ 80°C / 176°F Monitor CPU Temp. at 80°C / 176°F.
- ▶ 90°C / 194°F Monitor CPU Temp. at 90°C / 194°F.
- ▶ Disabled Disable this function.(Default value)

CPU FAN Fail Warning

- ▶ Disabled Fan Warning Function Disable. (Default value)
- ▶ Enabled Fan Warning Function Enable.

☞ SYSTEM FAN Fail Warning

- Disabled Fan Warning Function Disable. (Default value)
- Enabled Fan Warning Function Enable.

Frequency/Voltage Control

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Frequency/Voltage Control

CPU Clock Ratio	[10X]	Item Help
Linear Frequency Control	[Disabled]	Menu Level ►
x CPU Clock (MHz)	100	
x DRAM Clock (MHz)	AUTO	
x AGP Clock (MHz)	AUTO	
x PCI Clock (MHz)	AUTO	
⬆⬇⬆⬇: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Save Default F7: Optimized Defaults		

☞ CPU Clock Ratio

This setup option will automatically assign by CPU detection.

For Willamette CPU:

8X~23X default: 14X

For C-Stepping P4:

8X,10X~24X default: 15X

For Northwood CPU:

12X~24X default: 16X

The option will display "Locked" and read only if the CPU ratio is not changeable.

☞ LinearFrequency Control

- Disabled Disable this function. (Default value)
- Enabled Enable this function.

☞ CPU Clock

- 100~355 Select CPU Clock to 100MHz~355MHz.

If you use FSB400 Pentium 4 processor, please set "CPU Clock" to 100MHz.If you use FSB533 Pentium 4 processor, please set "CPU Clock" to 133MHz. If you use FSB800 Pentium 4 processor, please set "CPU Clock" to 200MHz.

Incorrect using it may cause your system broken. For power End-User use only!

☞ DRAM Clock (MHz)

- Please set DRAM Clock according to your requirement.

If you use DDR200 DRAM module, please set "DRAM Clock(MHz)" to 200. If you use DDR333 DRAM module, please set "DRAM Clock(MHz)" to 333.

Incorrect using it may cause your system broken. For power End-User use only!

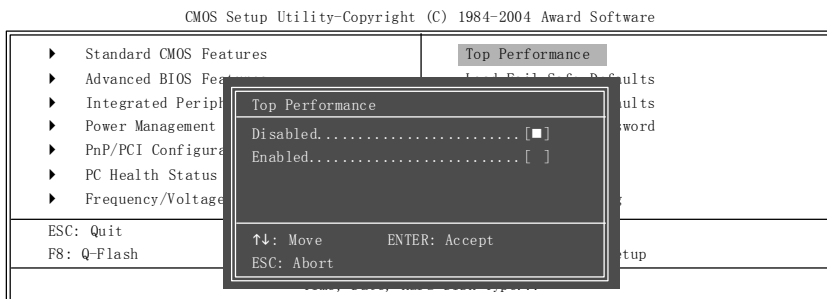
AGP Clock (MHz)

▶ Please set AGP Clock according to your requirement.
Incorrect using it may cause your system broken. For power End-User use only!

PCI Clock (MHz)

▶ Please set PCI Clock according to your requirement.
Incorrect using it may cause your system broken. For power End-User use only!

Top Performance

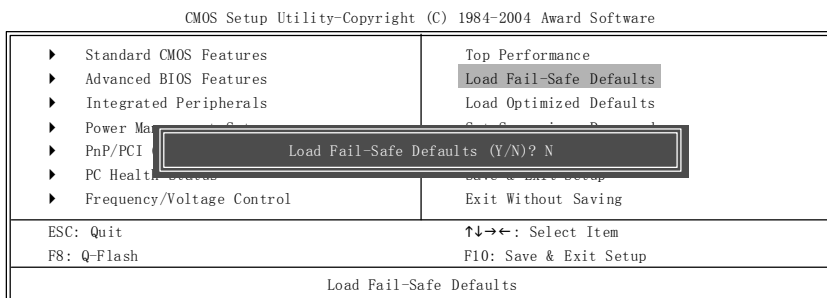


If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

- ▶ Disabled Disable this function. (Default Value)
- ▶ Enabled Enable Top Performance function.

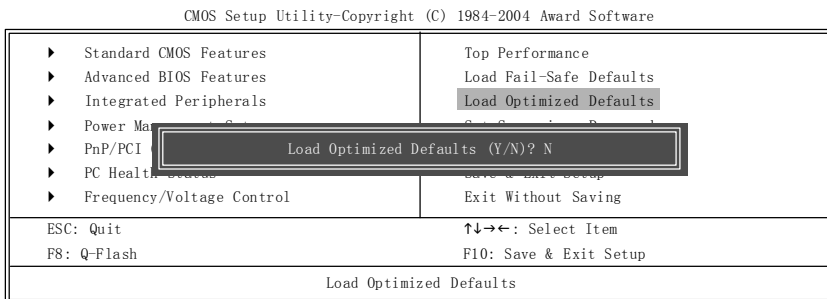
🔍 "Top Performance" will increase H/W working speed. Different system configuration (both H/W component and OS) will effect the result. For example, the same H/W configuration might not run properly with Windows XP, but works smoothly with Windows NT. Therefore, if your system is not perform enough, the reliability or stability problem will appear sometimes, and we will recommend you disabling the option to avoid the problem as mentioned above.

Load Fail-Safe Defaults



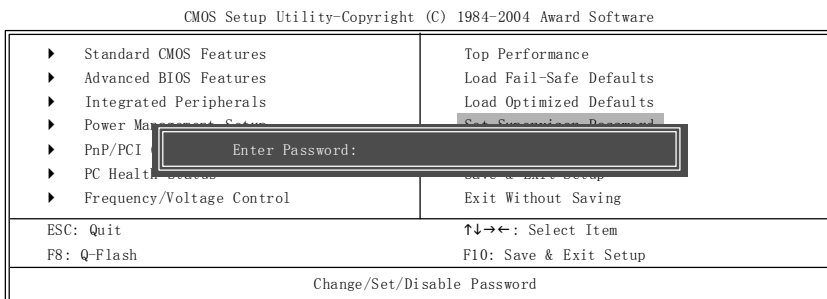
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Optimized Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Set Supervisor/User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

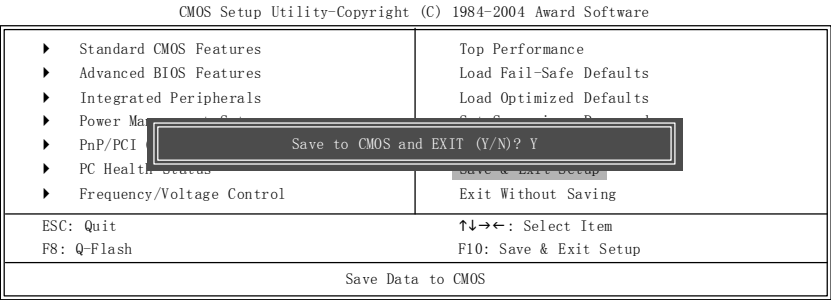
The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

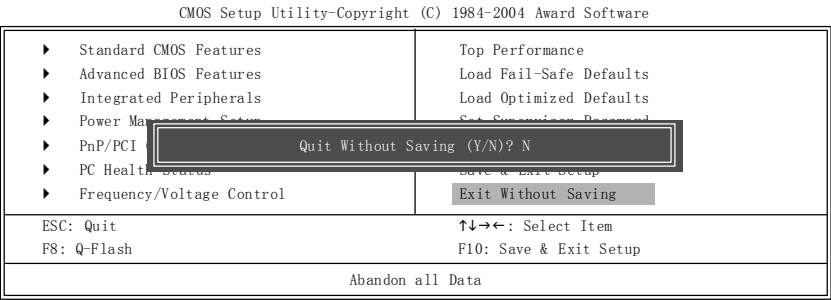
If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

Save & Exit Setup



Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.
Type "N" will return to Setup Utility.

Exit Without Saving



Type "Y" will quit the Setup Utility without saving to RTC CMOS.
Type "N" will return to Setup Utility.

Chapter 3 Install Drivers


Install Drivers

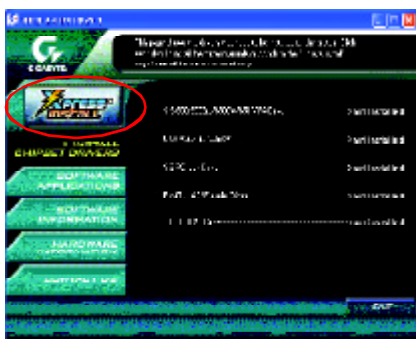


Pictures below are shown in Windows XP


Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

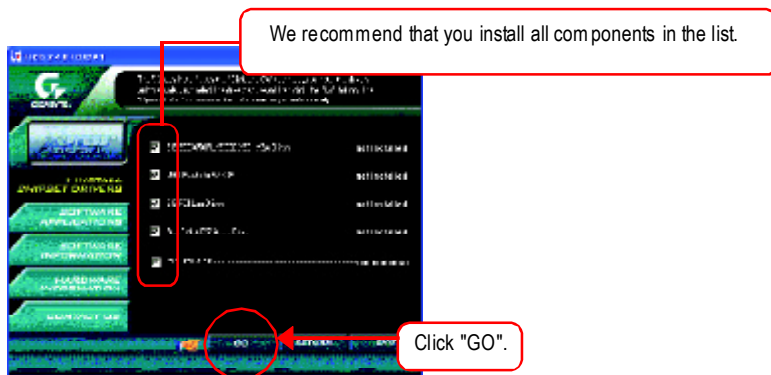
INSTALL CHIPSET DRIVER

This page shows the drivers that need to be installed for the system. Click each item to install the driver manually or switch to the  to install the drivers automatically.



Message: Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

The "Xpress Install" uses the "Click and Go" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The  will execute the installation for you by itself.



[illegible]

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